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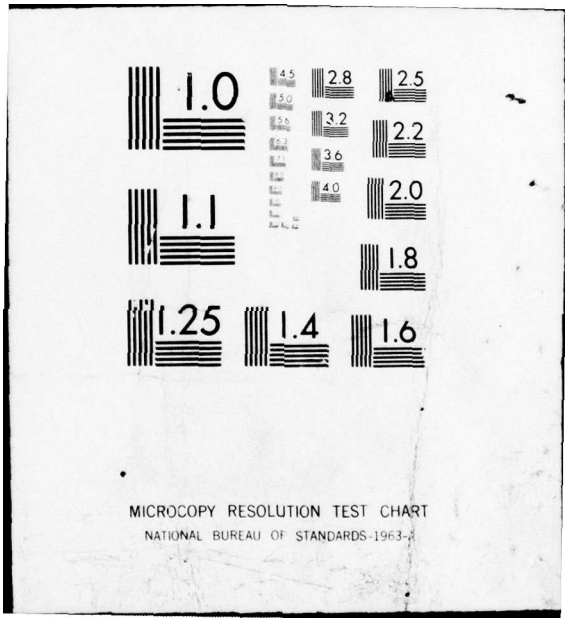
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UNITED STATES AIR FORCE
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USAF ENVIRONMENTAL
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SCOTT AIR FORCE BASE, ILLINOIS 62225

Report 8343A

RAINFALL AND CLOUD CLIMATOLOGY FOR INDONESIA

by

C. Marshall Carter, CMSgt, USAF

June 1977

REVIEW AND APPROVAL STATEMENT

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Medan, Sumatra
(over)

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Monthly and annual rainfall amounts and cloud cover amounts (less than or equal to 1/8) with visibilities greater than or equal to 6 miles are presented for locations in Indonesia. The period of record of rainfall amounts varies from 26 to 63 years depending on the location while the period of record of cloud cover amounts and visibilities is 10 years.

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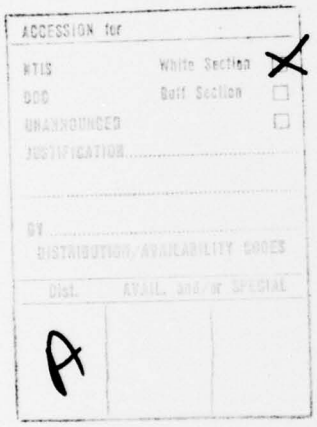
#19 Cont'd

Palembang, Sumatra
Padang, Sumatra
Djakarta, Java
Kupang, Timor
Semarang, Java
Denpasar, Bali
Pontianak, Borneo
Bandjermasin, Borneo
Makasar, Celebes
Poso, Celebes
Sukarnapura, New Guinea
Merauke, New Guinea
Biak Island
Banjumas, Java



Preface

USAFETAC prepared this report in answer to a request from the Defense Mapping Agency for Climotological Data for Indonesia.

In the event that this report is incorporated into another report by the requester or any other agency, request that USAFETAC be given credit for the information and furnished a copy of the new report in all cases where such dissemination is not prohibited.

This report answers a specific request and is not expected to have application beyond that request. We recommend that further questions on this or related problems be referred to USAFETAC for consultation and study.

TABLE OF CONTENTS

RAINFALL AND CLOUD CLIMATOLOGY FOR INDONESIA

Rainfall is frequent over most of Indonesia. Few locations have less than 100 rainy days per year and a great many locations have 150 or more rainy days. The mean annual rainfall throughout Indonesia is 78.74 inches. In general, the heaviest rainfall occurs on the windward slopes, whereas the least amounts fall at sheltered leeward locations. Throughout most of Indonesia, the greatest amounts of rain fall during the afternoon and the evening, and the least amounts fall during the morning.

In northern Sumatra, the wettest period is October through January and the driest, June and July. In the south, it is comparatively dry June or July through August or September, while the wet period is October through February or March. Figure 1 depicts the rainfall in inches, by month, at selected locations in Sumatra.

Over Java and the Lesser Sunda Islands the wettest months are November or December through March, and the driest, May or June through September or October. Figure 2 depicts the rainfall in inches, by month, at selected locations in Java and the Lesser Sunda Islands.

Borneo is wettest from November through April and driest July through September. However, considerable rainfall amounts are recorded at most places during the driest months. Figure 3 depicts the rainfall in inches, by month, at selected locations in Borneo.

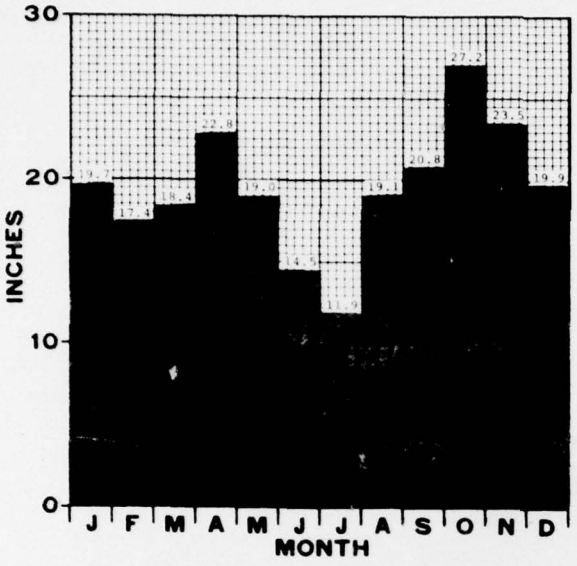
Rainfall distribution over the Celebes varies greatly from place to place. The northern and western coasts of the northern and southwestern peninsulas are wettest during December through February, whereas, the opposite coasts of these peninsulas and all the coasts of the remaining two peninsulas are generally their wettest during April through July. The driest period for most of the Celebes is August or September through October or November. Figure 4 depicts the rainfall in inches, by month, at selected locations in the Celebes.

The northern islands of the Moluccas are wettest on the northern coasts from January through March and on the southern coasts from May through July. The southern islands are wettest from December through April. Throughout the Moluccas, the driest months are August through October or November, except at Ambon and in southern Ceram where the dry period is November through February.

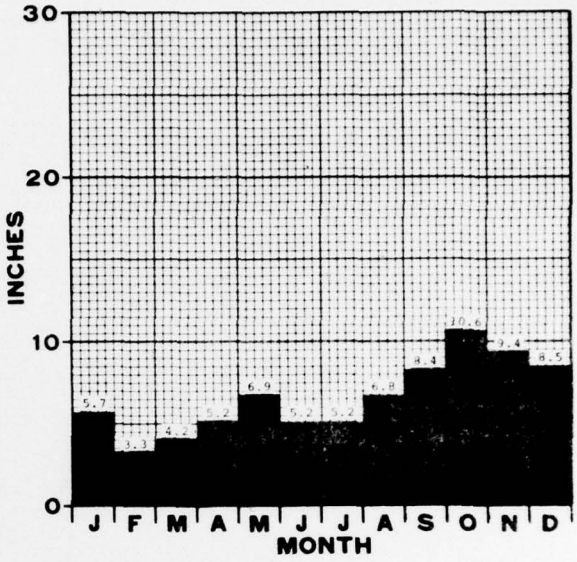
New Guinea experiences the wettest months from December or January through March or April in the northern and southern regions, May or June through September on the southern slopes and in the foothills, and in March or April through June or July in the remaining regions. Except on the southern slopes, the driest months are generally from June through November. Figure 5 depicts the rainfall in inches, by month, at selected locations in New Guinea.

Tables 1 and 2 provide percentage frequency of occurrence statistics for cloud cover less than or equal to 1/8 and visibility greater than or equal to 6 miles.

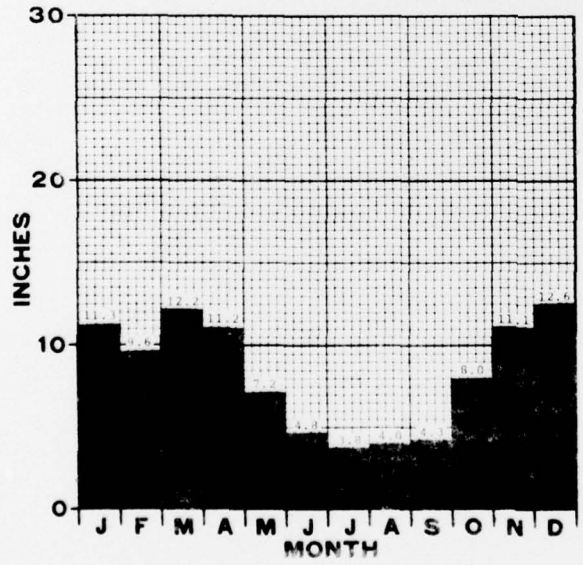
a. Lebongtandai, Sumatra
Annual Rainfall-234.1 in
Period of Record-30 yr



b. Medan, Sumatra
Annual Rainfall-79.3 in
Period of Record-59 yr



c. Palembang, Sumatra
Annual Rainfall-100.2 in
Period of Record-53 yr



d. Padang, Sumatra
Annual Rainfall-175.3 in
Period of Record-48 yr

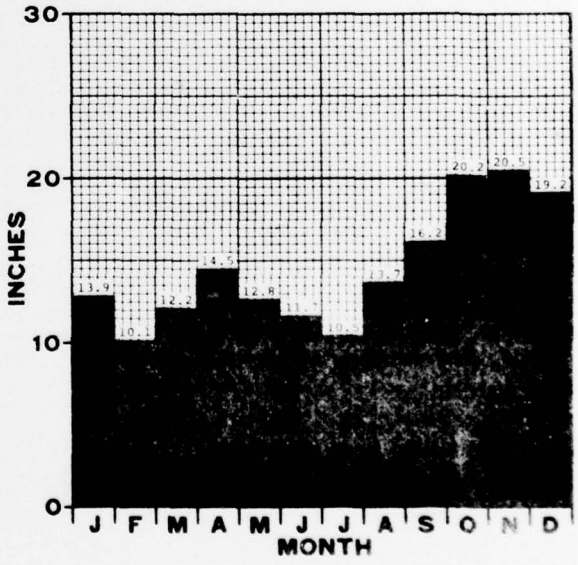
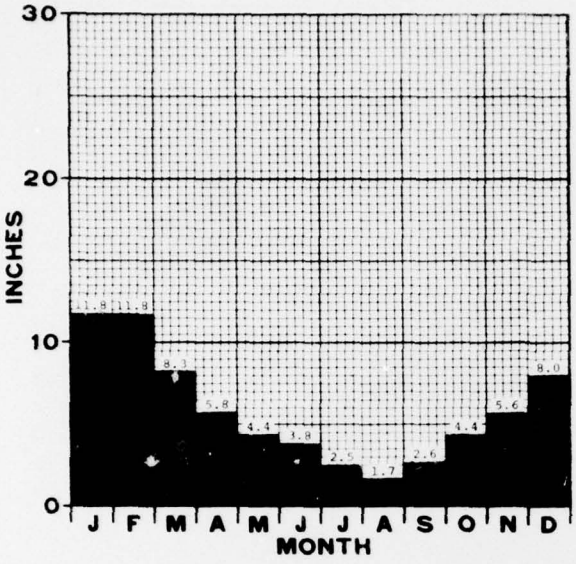
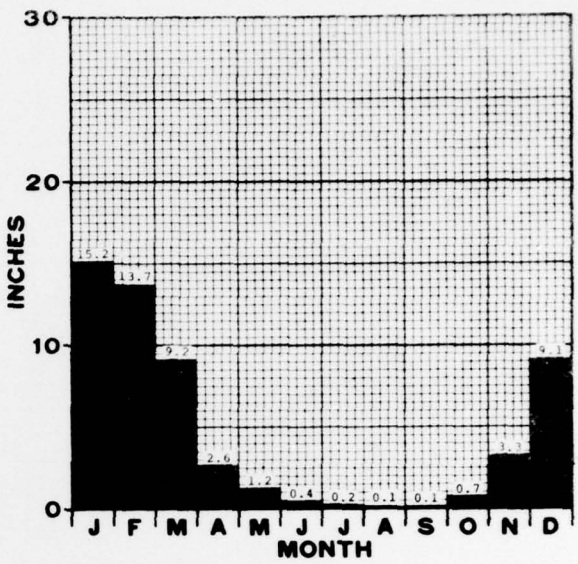


Figure 1. Selected Rainfall Amounts for Sumatra.

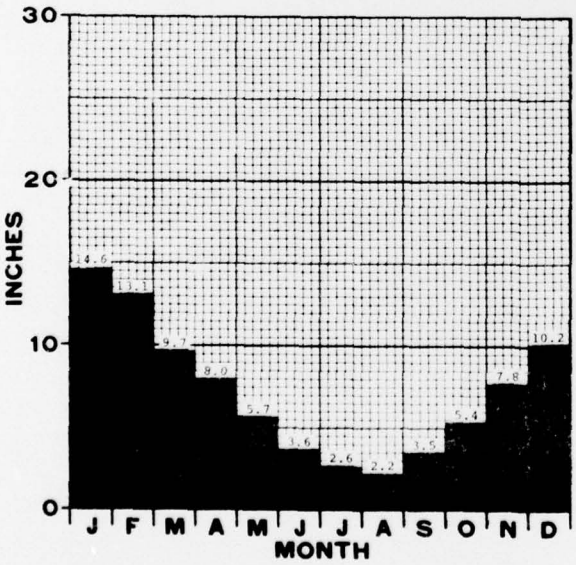
a. Djakarta, Java
Annual Rainfall-70.6 in
Period of Record-63 yr



b. Kupang, Timor
Annual Rainfall-55.6 in
Period of Record-52 yr



c. Semarang, Java
Annual Rainfall-86.3 in
Period of Record-48 yr



d. Denpasar, Bali
Annual Rainfall-68.4 in
Period of Record-27 yr

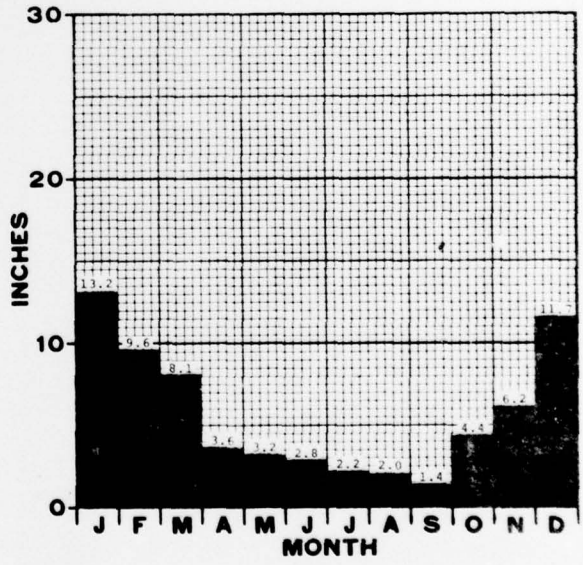


Figure 2. Selected Rainfall Amounts for Java and the Lesser Sunda Islands.

a. Pontianak, Borneo
Annual Rainfall-125.2 in
Period of Record-47 yr

b. Bandjermasin, Borneo
Annual Rainfall-93.3 in
Period of Record-58 yr

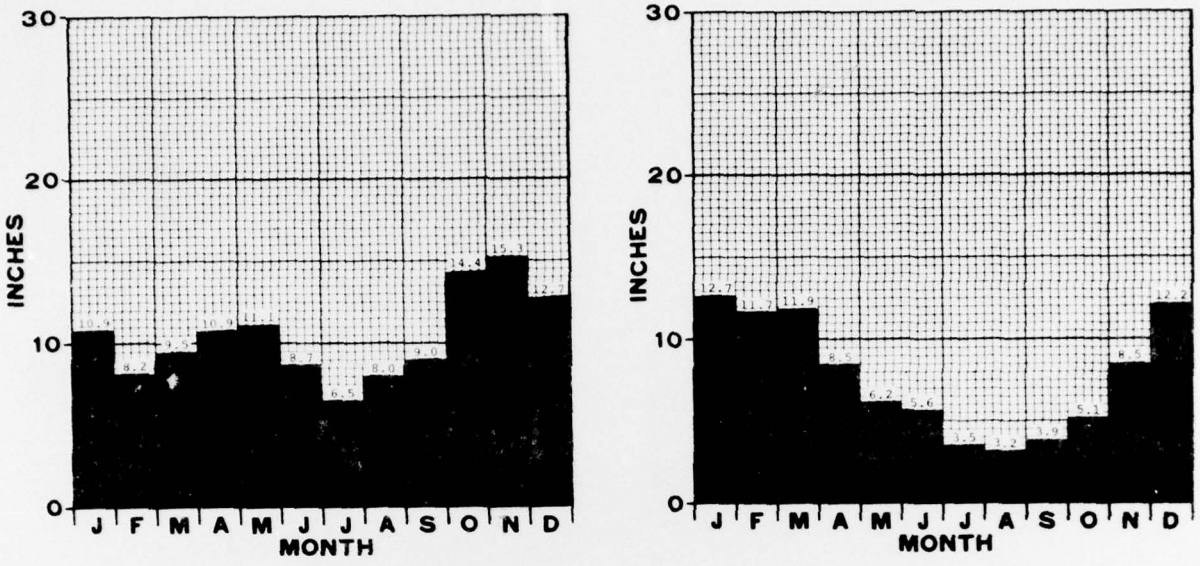


Figure 3. Selected Rainfall Amounts for Borneo.

a. Makasar, Celebes
Annual Rainfall-112.7 in
Period of Record-50 yr

b. Poso, Celebes
Annual Rainfall-92.6 in
Period of Record-26 yr

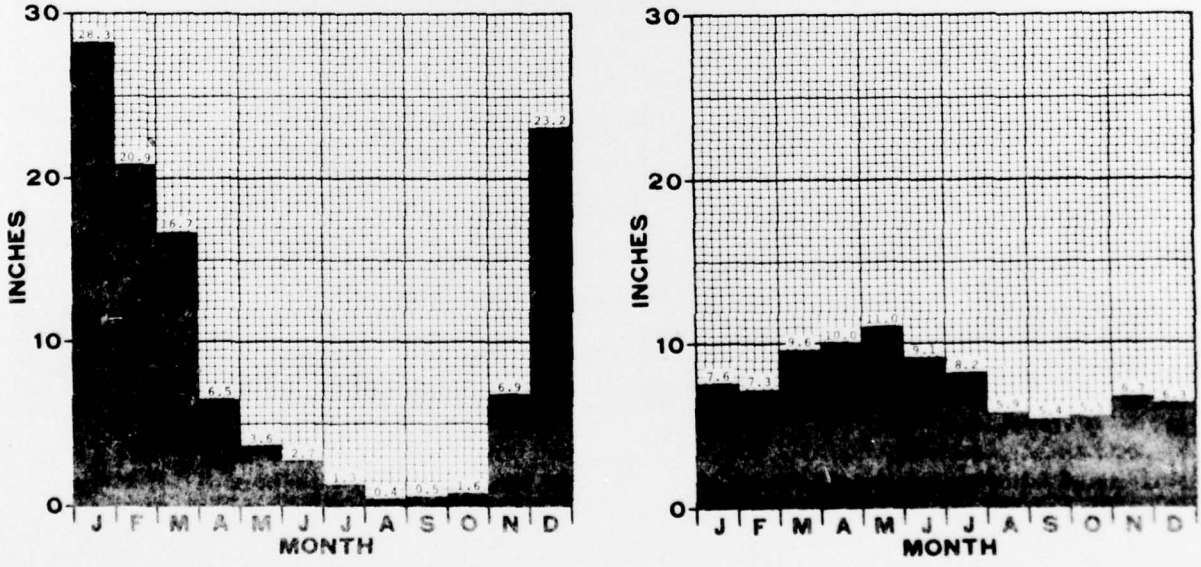


Figure 4. Selected Rainfall Amounts for Celebes.

a. Sukarnapura, New Guinea
Annual Rainfall-99.5 in
Period of Record-31 yr

b. Merauke, New Guinea
Annual Rainfall-60.0 in
Period of Record-50 yr

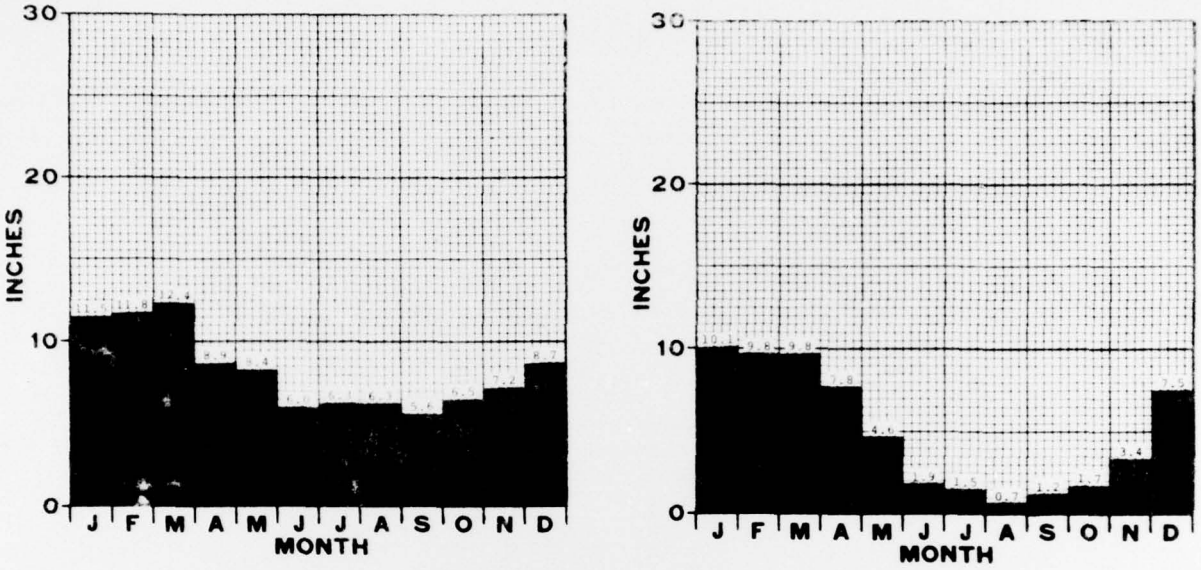


Figure 5. Selected Rainfall Amounts for New Guinea.

Table 1. Percentage Frequency of Cloud Cover ≤ 1/8 with Visibility ≥ 6 miles for Bandjermasin, Biak, Kupang, Makasar and Medan, Indonesia.

Location and Time	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
06-08L												
BANDJER	1.2	.0	2.9	8.0	10.4	18.5	18.9	16.7	15.9	12.1	3.4	1.8
BIAK	.0	.0	.0	.0	3.3	.0	5.3	9.1	.0	.0	.0	.0
KUPANG	*	*	*	*	*	*	*	*	*	*	*	*
MAKASAR	*	*	*	*	*	*	*	*	*	*	*	*
MEDAN	.0	.9	.8	.8	.7	.0	.0	.0	.0	.7	.0	.0
09-11L												
BANDJER	.7	.0	.0	1.8	1.8	3.4	4.8	5.2	3.7	1.6	.0	.0
BIAK	.9	.4	.7	.4	.0	1.1	.7	.4	.8	.4	.0	.4
KUPANG	1.0	2.9	5.6	17.8	18.1	19.0	22.0	26.5	25.5	16.8	7.6	3.8
MAKASAR	.8	1.1	.3	5.7	5.9	9.0	13.7	19.3	16.6	6.5	3.2	.6
MEDAN	5.7	.7	4.2	.7	.6	.5	1.0	.5	.0	.0	.0	.5
12-14L												
BANDJER	.0	.0	.0	.0	.5	1.0	.5	1.3	2.0	.0	.0	.0
BIAK	.0	.0	.0	.7	.0	.0	.0	.0	.0	.0	1.4	.0
KUPANG	.0	.9	1.0	9.7	14.5	18.8	24.1	26.0	28.7	12.3	6.3	.6
MAKASAR	.0	.0	.0	1.0	2.3	.0	2.2	7.9	10.6	6.0	1.0	.0
MEDAN	.0	.5	.0	.0	.0	.8	.8	.7	.4	.0	.0	.0
15-17L												
BANDJER	.9	.9	.7	.0	1.2	3.1	2.6	1.5	2.5	1.7	.0	.0
BIAK	.0	.0	.0	1.1	.0	.9	1.5	.5	.6	.0	.0	.0
KUPANG	.0	1.8	1.8	12.7	16.5	22.4	21.9	26.3	26.1	12.6	5.3	1.8
MAKASAR	.0	.0	.0	.8	1.8	4.3	5.2	14.7	11.5	7.6	.8	.0
MEDAN	.0	.0	.0	.7	.0	.5	1.2	.0	1.1	.0	.0	.0
18-20L												
BANDJER	.8	2.1	1.3	5.9	8.0	16.8	18.4	20.1	15.5	13.1	5.1	1.1
BIAK	.0	.0	1.0	1.1	1.1	1.1	.0	3.2	.0	.0	.0	4.1
KUPANG	1.5	6.6	9.3	14.8	16.9	26.4	17.9	18.6	14.5	12.4	12.2	10.1
MAKASAR	1.5	2.5	3.3	6.5	9.0	8.6	27.7	36.8	25.5	18.7	5.1	.0
MEDAN	1.2	1.0	.0	.0	.0	.0	.0	.9	.0	.0	.0	.0
ALL												
BANDJER	.7	.5	1.1	3.6	4.8	9.2	9.4	9.5	8.6	6.2	1.8	.6
BIAK	.9	.1	.7	1.7	1.2	1.2	1.2	2.1	.9	.5	.7	.7
KUPANG	.6	2.7	4.5	14.6	16.8	20.7	21.7	25.5	24.8	14.4	7.5	3.3
MAKASAR	.5	.8	.6	4.2	5.2	6.2	12.3	18.9	16.4	8.9	3.1	.3
MEDAN	1.5	.6	1.0	.4	.2	.4	.7	.4	.3	.2	.0	.1

Period of Record: Jan 66 - Dec 76 (Kupang: Oct 66 - Dec 76)

* Insufficient Data

Table 2. Percentage Frequency of Cloud Cover ≤ 1/8 with Visibility ≥ 6 miles for Banjumas, Denpasar, Djakarta and Semarang, Indonesia

Location and Time	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
00-02L												
BANJUMAS	.0	.0	.0	10.3	12.0	20.0	19.2	27.8	23.1	11.1	5.0	.0
DENPASAR	.0	.0	.0	32.4	15.6	15.4	7.7	8.0	13.2	11.7	3.8	2.0
DJAKARTA	.0	.0	.0	13.3	.0	.0	36.4	6.3	4.2	.0	.0	.0
SEMARANG	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
03-05L												
BANJUMAS	*	*	*	*	*	*	*	*	*	*	*	*
DENPASAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
DJAKARTA	.0	.0	.0	6.3	.0	16.7	10.0	12.5	7.7	27.3	.0	.0
SEMARANG	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
06-08L												
BANJUMAS	1.2	.0	2.9	8.0	10.4	18.5	18.9	16.7	15.9	12.1	3.4	1.8
DENPASAR	1.9	2.7	2.7	12.3	6.9	9.4	4.7	10.1	5.9	7.4	3.9	2.1
DJAKARTA	.0	.0	.0	.0	2.4	6.3	8.6	16.7	7.0	5.6	.0	1.4
SEMARANG	.0	.0	.0	.0	.0	10.0	22.2	18.2	30.0	12.5	.0	.0
09-11L												
BANJUMAS	.7	.0	.0	1.8	1.8	3.4	4.8	5.2	3.7	1.6	.0	.0
DENPASAR	2.5	1.4	2.2	7.4	4.9	7.7	5.8	6.4	7.9	4.8	3.7	1.1
DJAKARTA	.0	.0	.0	2.6	2.3	20.8	17.5	16.9	6.1	4.8	.0	.0
SEMARANG	1.8	.0	.0	1.8	2.6	14.6	19.0	15.9	15.6	2.4	.0	.0
12-14L												
BANJUMAS	.0	.0	.0	.0	.5	1.0	.5	1.3	2.0	.0	.0	.0
DENPASAR	1.8	1.2	1.2	9.8	9.7	7.9	7.3	14.4	10.0	7.9	4.8	1.3
DJAKARTA	.0	.0	.0	.0	.0	7.7	2.5	1.3	2.7	.0	.0	.0
SEMARANG	.0	.9	.0	.5	1.6	3.3	7.9	3.9	3.0	1.1	.7	.0
15-17L												
BANJUMAS	.9	.9	.7	.0	1.2	3.1	2.6	1.5	2.5	1.7	.0	.0
DENPASAR	3.5	1.6	.0	8.6	8.0	11.1	15.4	17.8	14.1	6.4	2.8	1.0
DJAKARTA	.0	.0	.0	.0	.0	14.0	1.8	4.3	3.3	.0	1.7	.0
SEMARANG	.0	.0	.0	.0	.9	.0	3.1	3.6	.6	.9	1.1	.0
18-20L												
BANJUMAS	.8	2.1	1.3	5.9	8.0	16.8	18.4	20.1	15.5	13.1	5.1	1.1
DENPASAR	4.6	.9	2.4	10.4	10.8	20.5	17.9	18.9	14.5	4.2	3.7	2.4
DJAKARTA	.0	.0	.0	.0	.0	11.5	5.6	4.1	4.3	.0	.0	.0
SEMARANG	.0	.0	.0	.0	5.6	.0	3.6	5.3	4.8	.0	.0	.0
21-23L												
BANJUMAS	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.3	.0	.0
DENPASAR	.0	.0	.0	15.4	20.0	18.8	21.4	.0	20.8	2.9	4.8	2.9
DJAKARTA	.0	.0	.0	6.1	.0	5.0	17.4	3.7	3.2	2.6	.0	.0
SEMARANG	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ALL												
BANJUMAS	.7	.5	1.1	3.6	4.8	9.2	9.4	9.5	8.6	6.2	1.8	.6
DENPASAR	2.6	1.5	1.7	10.8	8.3	10.8	9.4	12.9	10.6	6.4	3.9	1.6
DJAKARTA	.0	.0	.0	2.1	.9	11.5	10.3	8.2	4.7	2.9	.3	.3
SEMARANG	.4	.4	.0	.7	1.8	5.1	9.3	6.7	5.6	1.6	.5	.0

Period of Record: Jan 66 - Dec 76

* Insufficient Data